



Perfection Is in the Details—or Is It?

After I earned my engineering doctorate at the University of Texas, I accepted a teaching position at Texas A&M University. By 1982, I was ready to return to the field and put principles to practice

I MOVED BACK TO ISRAEL AND GOT A JOB MANAGING A large building project where I was in charge of both the design and construction. The complex I was working on was being built in Jerusalem—but the design took place in Tel Aviv. I spent my days shuttling back and forth between the two sites.

It soon became clear that things weren't going according to the textbook. I had learned to prepare implementation plans as early as possible and as detailed as possible.

My construction superintendent, an experienced engineer twenty years my senior, kept postponing the planning I asked him to do. He insisted we weren't ready to create a complete plan because details of the project kept changing.

Eventually, I came to realize that he was right to delay the detailed planning, because quite often I would explain something I wanted done in the morning; then I would go to Tel Aviv in the afternoon and find out that the design had been altered and the information that I had passed along in the morning was no longer accurate. Still, I didn't know how to explain what I was observing—even to myself.

I left that construction project to teach a summer graduate school class on construction productivity at Texas A&M. As part of the course, I sent five teams of students to construction sites to see how productivity could be improved. The students set out armed with high-tech tools and prepared to conduct sophisticated measurement and analysis. I expected them to come back with recommendations to improve productivity at their sites by changes in project staffing, equipment use and the like.

After weeks of study, they produced, instead, detailed short-term plans for the projects they had observed. As project managers, we were all taught to

prepare comprehensive plans, with full details at the beginning of a project. But that wasn't what my students observed in the field, and it wasn't what I had experienced as a project manager. I began to question the accepted theory of project planning. Something so basic that it was alarming.

Why, I wondered, didn't experienced project managers have these detailed plans in place before construction began? Why did they have to wait for my students?

After the course ended, I spent some time giving presentations at construction companies across the U.S.

I shared my questions about planning with top managers at the best companies. No one threw me out of the room, and that was enough to keep me going. I continued to struggle to understand what I had observed.

Then, a piece of writing came along to reinforce my thinking. In Jay R. Galbraith's 1977 book, *Organization Design*, I found the missing piece of my puzzle: uncertainty as information gap. I came to understand that planning equals uncertainty reduction. In subsequent research, I was able to confirm this. I observed that uncertainty is not an exceptional state in an otherwise predictable process of project work.

With this new insight, it was easy to see why my superintendent kept postponing his planning and why my graduate students didn't find detailed plans at the sites they visited: they needed to collect data onsite, after construction started. Detailed plans aren't possible in the absence of information. I learned that perfection is, indeed, in the details—but not prematurely. A project manager must adjust the degree of details in a project plan to the completeness of available information.

It is so clear to me now, but it took me years to reach these conclusions. Before I could, I had to let go of assumptions that I had been taught. So much of learning, I have come to realize, begins with unlearning. •

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